6. AUTO CALL FACILITY INSTALLATION

General

Before using the procedures outlined in this section, the administrator should be familiar with the procedures and commands used to install a UNIX system and should have read the "SETTING UP THE UNIX SYSTEM" sections of this guide.

The UNIX system has the capability to utilize a Bell System 801-type Auto Call Unit (ACU) for setting up a facility for dialing-up and communicating with other systems. The user level interface for the device is the command **cu** [see **cu**(1C) in the UNIX System User's Manual], and the system may also use it for networking via the **uucp**(1C) programs. A system administrator, however, must first make certain software adjustments to the system to enable the device to be used. These adjustments are listed below.

Procedures

The following step-by-step procedures should ensure a properly software installed automatic call-up facility. When installing more than one facility, adjust the instructions accordingly. An ACU interface (i.e., a TN8, TN75B, UN56, or a DN-11 line card), an 801-type ACU, and a modem per facility (except as noted below for Bell System 57A1 and 57B1 data units for shared ACU setups) are needed.

1. The ACU must first be optioned correctly and associated with a dedicated dial-in port. For the following examples, */dev/tty00* will be the dedicated dial-in port.

   The 801-type ACU contains the following switches and should be optioned as shown below. A **0** = open and a **1** = closed (i.e., side next to number is down); bracketed switches are missing on some models.

   S1 = 1000[1]
   S2 = 0101
   S3 = 11010
   S4 = 11[00]

   When using 212-type data sets, ensure the optioning of these also.

   S1 = [0]001
   S2 = 110001100
   S3 = 11110000
   S4 = 00

   When using the shared ACU facility, the 57B1 data unit will have to be properly optioned. If the 57B1 data unit is the only sharing circuit in an arrangement or the first in an arrangement using two data mountings, all the positions of switches S9 and S10 must be open. If the 57B1 is the second sharing circuit in an arrangement using two data mountings, all positions of switches S9 and S10 must be closed. There are no customer selected options.

2. The data set should have the busy switch in the up or off position (i.e., do not busy it out). When using the 103J-type, 113C-type, or 113D-type data sets with an 801-type ACU, note the special instructions in the "ADMINISTRATIVE ADVICE" sections of this guide.

   To use the 212A data set at high speed, the high-speed button must be pressed in. This is *not* software switchable. If high speed is chosen, any UNIX system called must have 1200-baud answer capability or connection will not be possible.

3. Edit */etc/inittab* and turn the **getty** process *off* for multiuser state (e.g., state 2).

   ```
   00:2:off:/etc/getty tty00 1200 #
   ```

This will not allow anyone to dial into this dedicated port. If you are already in the multiuser state when performing this edit, invoke *init Q* to initiate the new status of the line. You may also have to kill off the old **getty** by typing **ps -ef** and noting the process ID (PID) for that line and then killing that process ID.

4. Include the ACU interface device driver entry in your system description file with the appropriate unit information; for example:

   For UNIX system on DEC processors:

   ```
   dn11    370    175200    4    1
   ```

   For UNIX system on the 3B20S Processor:

   ```
   iop    ...
          .
          .
          .
          acu    1    2    0    0    0    0
   ```

5. Make a new operating system. On DEC systems, note the major device number generated by **config -t**. It will usually be a 7 on VAX systems and a 4 on PDP-11 UNIX systems. The major device number on a 3B20S Processor is 15.

6. Install the new system as */unix* and reboot.

7. Using the major device number, make the following device entries in the */dev* directory. The name *acu0* is commonly used on 3B20S UNIX systems, while *dn0* is used with DEC UNIX systems.

   ```
   # mknod /dev/dn0 c 7 0
   # ln /dev/dn0 /dev/cua0
   #ln /dev/tty00 /dev/cul0
   ```

   The linked names of *cu10* and *cua0* are simply aliases of the access and line devices that are known by the **cu** and **uucp** commands.

   Some configurations may incorporate a shared ACU capability (57A1 and 57B1 data units) that enables one ACU interface device and one ACU to dial numbers and establish connections for up to 12 phone lines (data sets).

   In this configuration, the data sets are located in two mounting racks—six to a rack. The data sets are numbered 1 through 6 in the first rack and 9 through 14 in the second rack. The data set number should be reflected in the high order 4 bits of the minor device number of the ACU interface device entries in */dev*.

   As a comparison, to install four ACU facilities on a UNIX system of a DEC processor would have previously required four DN-11 line cards, four 801-type ACUs, four data sets, and the following nodes:

ENTRY	Minor Device #
/dev/dn0	0
/dev/dn1	1
/dev/dn2	2
/dev/dn3	3

With the shared ACU facility, only one DN-11 line card and one ACU are required. Up to 12 data sets can be serviced and their nodes would be:

ENTRY	Minor	Device #
/dev/dn0	020	(16)
/dev/dn1	040	(32)
dev/dn2	060	(48)
/dev/dn3	0100	(64)
/dev/dn4	0120	(80)
/dev/dn5	0140	(96)
/dev/dn6	0220	(144)
/dev/dn7	0240	(160)
/dev/dn8	0260	(176)
/dev/dn9	0300	(192)
/dev/dn10	0320	(208)
/dev/dn11	0340	(224)

8. Change the modes on the two devices to read/write by all.

   # chmod 666 /dev/cua0 /dev/cu10

   Note that the modes of the aliases of *cu10* and *cua0* are changed automatically because they are links.

9. Ensure that an appropriate entry exists in the file */usr/lib/uucp/L-devices*.

   ACU cul0 cua0 300

   If the high speed was chosen on the 212A data set, this line should have the speed 1200-baud instead of 300-baud.

Note: The above are only examples and should not necessarily be copied directly for your system.

Diagnosing Problems

If the above steps are followed precisely and the unit still does not work, the hardware should be checked out. Problems should be diagnosed in the following order:

1. Ensure that the lock file (*/usr/spool/uucp/LCK..cul?*) is not present from earlier failed attempts with **cu** or **uucp**.
2. Verify that both the ACU and the data set are correctly optioned as described above.
3. Determine that the ACU is dialing the *correct* number.
4. Ensure the integrity of the data set by using it as a dial-up port.
5. Check that the ACU interface device (TN8, TN75B, UN56, or DN-11) is pulsing the correct digits to the ACU.
6. Determine that the cable leads are not defective.

NOTES